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PATENT ABSTRACTS OF JAPAN

(11)Publication number : 63-235912

(43)Date of publication of application : 30.09.1988

(51)Int.Cl.

G02B 27/00

(21)Application number : 62-068023

(71)Applicant : NIKON CORP

(22)Date of filing : 24.03.1987

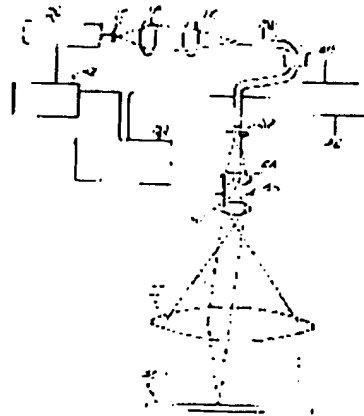
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(54) OPTICAL DEVICE

(57)Abstract:

PURPOSE: To uniformize lighting by the reduction of speckles and averaging effects by plural laser pulses by passing laser light through a random fiber which vibrates.

CONSTITUTION: When plural pulse laser beams are projected from an excimer laser light source 30, the laser light is incident on an end surface of the random fiber 36 through a divergent lens 12, an objective 14, and a condenser lens 16. Then this random fiber 36 is vibrated at random by a fiber driving device 4 which is controlled by a fiber driving controller 42. On the other hand, while the laser light can be projected in an invariably different direction by the random vibration of the random fiber 36, the laser light source 30 generates and emits plural pulses through a laser controller 32 which receives a control command. Consequently, illumination light which has uniform intensity after speckles are removed by the averaging effects of the plural pulses is projected on a reticle 48.



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[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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